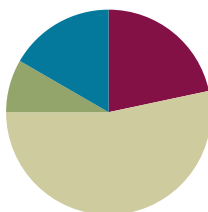# Lesson 10

Objective: Collect, sort, and organize data, then ask and answer questions about the number of data points.

Related Topics:
More Lesson Plans for Grade 1 Common Core Math

Suggested Lesson Structure

■ Fluency Practice   (13 minutes)
■ Application Problem   (5 minutes)
■ Concept Development   (32 minutes)
■ Student Debrief   (10 minutes)
   Total Time   **(60 minutes)**

Fluency Practice (13 minutes)

▪ Happy Counting **1.OA.5, 1.NBT.5**   (3 minutes)
▪ Race and Roll Subtraction **1.OA.6**   (4 minutes)
▪ Subtraction Within 20 **1.OA.6**   (6 minutes)

Happy Counting (3 minutes)

Note: Practice with counting forward and backward by tens and ones strengthens students' understanding of place value. Counting by twos and fives strengthens addition and subtraction skills.

Repeat the Happy Counting activity from G1–M3–Lesson 2. Choose a counting pattern and range based on your students' skill level. If proficient with counting by ones, twos, fives, and tens to 40, start at 40 and go to 80. If proficient between 40 and 80, work between 80 and 120. Alternate between counting the regular way and the Say Ten way to reinforce place value.

Race and Roll Subtraction (4 minutes)

Materials: (S) 1 die per set of partners

Note: This fluency activity reviews the grade level standard of subtracting within 20.

Partners start at 20 and take turns rolling the die to subtract the number rolled from the total. (For example, Partner A rolls 3 and says, "20 – 3 = 17." Partner B rolls 2 and says, "17 – 2 = 15.") They continue rapidly rolling and saying number sentences until they reach 0, which they must hit precisely. Partners stand when they reach 0. Repeat the game as time permits.

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engage^ny   3.D.3

Subtraction Within 20 (6 minutes)

Materials: (T) Hide Zero cards (S) Personal white boards

Note: This review fluency helps strengthen students' understanding of the take from ten and take from the ones subtraction strategies, as well as their ability to recognize appropriate strategies based on problem types.
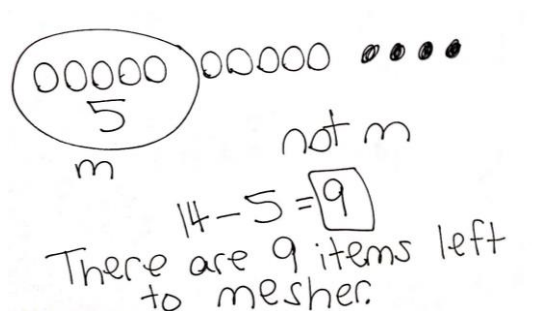
- T: (Show 14 with Hide Zero cards.) How can I take 14 apart to help me subtract?
- S: 10 and 4.
- T: I want to subtract 2 from 14. Write a number sentence to show whether I should subtract 2 from the 4 or the 10.
- S: (Write 4 – 2 = 2.)
- T: Why wouldn't I take from my 10?
- S: You don't need to because you have enough ones.
- T: Yes! It's much easier to just subtract from my ones! Since 4 – 2 = 2, 14 – 2 is? Write the subtraction sentence.
- S: (Write 14 – 2 = 12.)
- T: (Replace the 4 Hide Zero card with a 2.) Yes!

Repeat with 14 – 5, eliciting that you need to take from ten because there are not enough ones. Repeat with similar problems.

Application Problem (5 minutes)

There were 14 items on the table to measure. I already measured 5 of them. How many more items are there to measure?

Note: The use of the word *measure* in this problem raises a level of complexity as students may expect to use a measuring tool to solve. This problem encourages students to consider the context of the whole problem rather than focusing solely on key words.

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Concept Development (32 minutes)

Materials: (T) 3 pieces of chart paper (S) 1 jumbo popsicle stick and a marker (distributed at each seat), personal white board
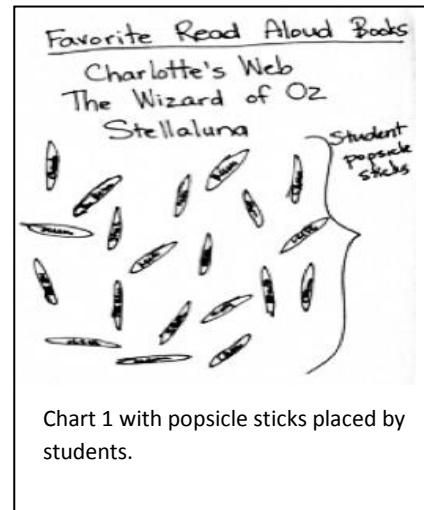
Note: Before today's math lesson begins, prepare three charts:

Chart 1:   *Favorite Read Aloud Books*

Chart 2:   *Favorite Read Aloud Books* with a blank table labeled with *Number of Students*

Chart 3:   *Favorite Sports* with a blank table labeled with *Name of Sport* and *Number of Students*

Also, later in the lesson, students will be asked to vote for one of three sports. A topic other than sports can be used to match the class's preference. The lesson requires that only three choices be provided from which the students can pick. Model for students that when making a table of information, as they will be making today, the symbols within the table all need to be the same.

Have students come to the meeting area with their personal white boards and sit in a semi-circle formation.

Chart 1 with popsicle sticks placed by students.

T: I want to find out which read aloud books from first grade you like the most. Can you name some of the books we read together this year?

S: (Answers may vary. Choose three titles and write them on Chart 1. You may want to use the most important word from the title to alleviate students from writing many words during the following activity.)

T: Let's collect some information, or data, to find out how many students like which books the most. How should we collect our data?

S: Ask each student, and then write their name down next to the book title. → Call out each title and ask us to raise our hands if it is our favorite book.

> **NOTES ON MULTIPLE MEANS OF REPRESENTATION:**
>
> Highlight the critical vocabulary for your students as you teach the lesson. Vocabulary that you will want to highlight is *collecting, organize, sorting, data,* and *table* as this is the first time students are being introduced to these words in the context of math. Try relating the vocabulary to something they already know. This will be especially helpful to English language learners.

T: Each of you has a popsicle stick at your table. Decide which book you liked the most out of these three choices. Then, write the name of the book on the popsicle stick. Come up to this chart and place your stick anywhere. (Lay the chart on the floor in the middle of the meeting area.)

S: (Write down their favorite book and freely place them on the chart.)

T: Wow, this chart is filled with ____ (the number of students) popsicle sticks. How many students liked Book A? (Give five seconds for students to count.)

S: (Answers may vary.) I can't count that fast! I need more time.

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T: We have different answers and some people didn't even get to finish counting! How can we make counting these popsicle sticks easier?

S: After we count each popsicle stick, take it off so we can keep track of which ones we have already counted. → Get all the popsicle sticks for each book and put them together. We should separate and sort them. → We should organize these sticks by book titles!

T: These are great ideas. I agree! Here is a table. It will help us organize our information or data. (Lay Chart 2 on the floor and write in the titles. Ask a few student volunteers to rearrange their popsicle sticks in a horizontal line next to each book title.)

T: Now is it easier to see?

S: Yes!

T: How can we organize the data so we can count more efficiently and see more easily?

S: Group them by twos. → Group them by fives. Put them in 5-group rows!

T: I love the idea of organizing them into groups of 5. In fact, we are going to arrange some of these sticks in a special way to show groups of 5. Help me count as I show you how this is done.

S: 1, 2, 3, 4, 5. (Count as the teacher points to each popsicle stick.)

T: Stop! Since we have a group of 5 here, I'm going to take the fifth stick and lay it across the others. (Model.) Show me in the air how this group of 5 is made as we count from 1 through 5 again.

S: 1, 2, 3, 4, 5. (Make tally marks in the air with teacher modeling.)

T: You just used **tally marks**. Tally marks come in groups of 5 where the fifth line always goes across the rest of the four lines. Let's continue with the rest of these sticks.
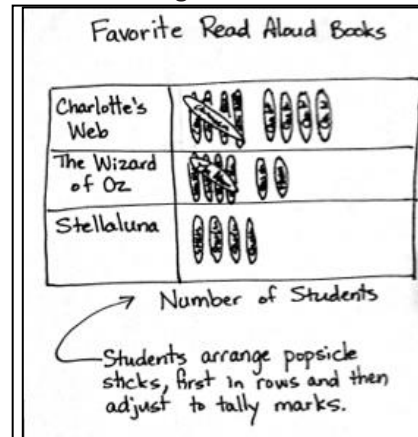
Students count to 5 and make tally marks in the air as the teacher makes tally marks with popsicle sticks. After a few, ask student volunteers to rearrange the remaining popsicle sticks.

T: Great job organizing the data by sorting the information we collected. Now we can see and count our information more easily.

Count the tally marks for each book title and record the number directly on the table. Invite students to interpret the data by posing questions such as those below.

- How many students liked Book A the most?

- How many students liked Book A or Book B the most? (Note: Because the question says "or," students need to add the number for A and the number for B.)

- Which book is most liked by our classmates? Least liked?

Chart 2 with popsicle sticks arranged as tallies.

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Repeat the process with favorite sports using football, basketball, and soccer as the three choices. Alternatively, you may use a theme other than sports if it would have more appeal for your class. Another strategy is to offer *other* as a choice. Students may use the back of the original popsicle sticks to record their choice. After creating the table on Chart 3, have students write down their answers as you ask the following questions:

Chart 3

- How many students chose football as the sport they like best?
- How many students chose basketball as the sport they like best?
- How many students chose soccer as the sport they like best?
- What is the total number of students who like soccer or basketball the best?
- Which sport received the most votes?
- Think of a question you could ask a friend about the table.

Note: Save these tables for reference in the future lessons in this topic.

Problem Set (10 minutes)

Students should do their personal best to complete the Problem Set within the allotted 10 minutes. For some classes, it may be appropriate to modify the assignment by specifying which problems they work on first.

> **NOTES ON MULTIPLE MEANS OF REPRESENTATION:**
>
> When using a table to answer questions, ask student volunteers to point to the category label to ensure they are referring to the appropriate category. Remind students to also count accurately so that the interpretation of the information displayed in their table is valid.

Student Debrief (10 minutes)

Lesson Objective: Collect, sort, and organize data, then ask and answer questions about the number of data points.

The Student Debrief is intended to invite reflection and active processing of the total lesson experience.

Invite students to review their solutions for the Problem Set. They should check work by comparing answers with a partner before going over answers as a class. Look for misconceptions or misunderstandings that can be addressed in the Debrief. Guide students in a conversation to debrief the Problem Set and process the lesson.

You may choose to use any combination of the questions below to lead the discussion.

- How is making a table helpful when we are looking at a lot of information?
- Why is sorting and organizing data important when you are making a table?
- In what ways do tables help us see information in a quicker and easier way?

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- Share the problem you made up using the favorite sports table. Solve each other's questions and check your answers.
- How are 5-group rows and tally marks similar? How are they different?
- Why is using **tally marks** better than using 5-group rows when making a table?

Exit Ticket (3 minutes)

After the Student Debrief, instruct students to complete the Exit Ticket. A review of their work will help you assess the students' understanding of the concepts that were presented in the lesson today and plan more effectively for future lessons. You may read the questions aloud to the students.

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3.D.8

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Name _____   Date _____

A group of people were asked their favorite color. Organize the data using tally marks and answer the questions.
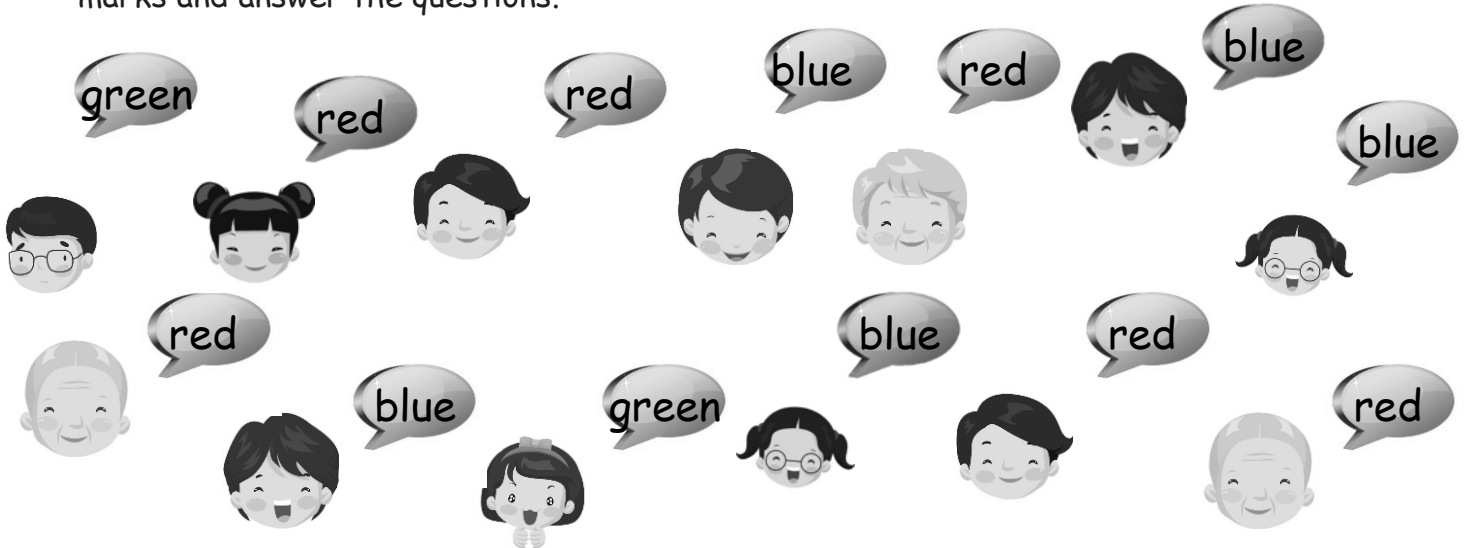
green   red   red   blue   red   blue

blue

red   blue   green   blue   red

red

Red	
Green	
Blue	

How many people like red? _____ people like red.

How many people like blue? _____ people like blue.

How many people like green? _____ people like green.

What color do people like the **least**? _____

Write a number sentence that tells the total number of people who were asked their favorite color.

_____

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Name _____   Date _____

Use the data below to answer the following questions.

How many teeth has each student lost?

Student	Number of Teeth Lost
Mayra	3
Eddie	5
Luna	4

1. What is the **total** number of students that lost 3 teeth each?   _____ student(s)

2. What is the **greatest** number of teeth lost? _____ teeth

3. What is the total number of students that lost **fewer** than 5 teeth? _____ student(s)

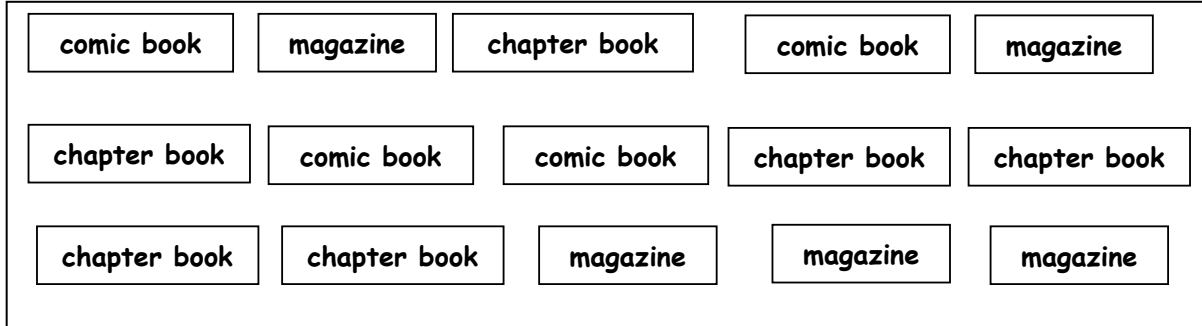4. Write an addition sentence for the **total** number of teeth all 3 students lost.

   _____

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Name _____   Date _____

Students were asked about their favorite ice cream flavor. Use the data below to answer the questions.

Ice Cream Flavor	Tally Marks	Votes
Chocolate	IIII	
Strawberry	III	
Cookie Dough	HHH HHH	

1. Write the number of students that liked each flavor in the *Votes* column.

2. How many students chose cookie dough as the flavor they like **best**? _____ students

3. What is the total number of students who like chocolate or strawberry the **best**? _____ students

4. Which flavor is the **least** favorite? _____

5. What is the total number of students who like cookie dough or chocolate the **best**? _____ students

6. Which two flavors were liked by a **total** of 7 students?

    _____ and _____

7. Write an addition sentence that shows how many students voted for their favorite ice cream flavor:

    _____

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Students voted on what they like to read the most. Organize the data using tally marks and then answer the questions.

comic book	magazine	chapter book	comic book	magazine
chapter book	comic book	comic book	chapter book	chapter book
chapter book	chapter book	magazine	magazine	magazine

What Students Like to Read the Most	Number of People
Comic Book	
Magazine	
Chapter Book	

1. How many students like to read chapter books? _____ students

2. Which item is the least favorite to read among the students? _____

3. How many more students like to read chapter books than magazines?

    _____students

4. What is the total number of students that like to read magazines or chapter books?

    _____students

5. Which two items did a total of 9 students like to read?

6. _____ and _____

7. Write an addition sentence that shows how many students voted.

    _____